CLAIMS

1. (previously presented) A method for determining a state-of-charge of a battery, comprising the steps of

evaluating a transition frequency of an impedance for a battery, which is excited by an alternating current, and assigning the transition frequency to the state-of-charge of the battery wherein the transition frequency is a frequency of the alternating current at which the imaginary part of the impedance of the battery vanishes.

2. (previously presented) The method according to claim 1, comprising exciting the battery by noise signals which are generated by loads in a power net which comprises the battery, and/or by an alternating current source contained in the power net.

3. (previously presented) The method according to claim 1 comprising measuring the alternating voltage drop at the battery.

4. (previously presented) The method according to claim 1, comprising measuring the intensity of the alternating current flowing through the battery.

5. (previously presented) The method according to claim 1, comprising determining a phase difference between a phase of an alternating voltage and a phase of the alternating current.

6. (previously presented) The method according to claim 1, comprising determining the transition frequency of the alternating current, at which the phase difference between the phase of an alternating voltage and the phase of the alternating current vanishes.

7. (previously presented) The method according to claim 1, comprising determining the complex impedance of the battery.

8. (previously presented) The method according to claim 1, comprising determining the frequency of the alternating current, at which an imaginary part of the impedance vanishes.

9. (previously presented) The method according to claim 1, comprising varying a frequency of the alternating current, exciting the battery.

10. (previously presented) The method according to claim 1, wherein the assignment of the transition frequency to the state-of-charge is a function of the operating temperature of the battery.

11. (previously presented) The method according to claim 1, wherein the assignment of the transition frequency to the state-of-charge is a function of an intensity of a direct current flowing through the battery.

12. (previously presented) The method according to claim 1, wherein the assignment of the transition frequency to the state-of-charge is a function of the aging status of the battery.

13. (previously presented) The method according to claim 1, comprising determining an aging status of the battery.

14. (previously presented) A device for determining a state-of-charge of a battery, comprising an element for determining a transition frequency of an impedance of a battery, which is excited by an alternating current, and a calculation unit for assigning the transition frequency to the state-of-charge of the battery, where the transition frequency is a frequency of the alternating current at which the imaginary part of the impedance of the battery vanishes.

15. (previously presented) The device according to claim 14, comprising a variable alternating current source.

16. (previously presented) The device according to claim 14, wherein the element for determining of the transition frequency comprises a sensor for the measurement of an alternating voltage drop at the battery.

17. (previously presented) The device according to claim 14, wherein the element for determining of the transition frequency comprises a sensor for the measurement of the intensity of an alternating current flowing through the battery.

18. (previously presented) The device according to claim 14, wherein the element for determining of the transition frequency comprises at least a variable frequency filter for filtering the measured current and voltage signals.

19. (previously presented) The device according to claim 14, wherein the element for determining of the transition frequency comprises a phase comparator, which determines the phase difference between the filtered current and voltage signals.

20. (previously presented) The device according to claim 14, wherein the element for determining of the transition frequency comprises a control unit, which scrutinizes the phase difference and modifies a transmitted frequency of the frequency filter and/or a frequency of the alternating current source, till the phase difference is null.

21. (previously presented) The device according to claim 14, wherein the element for determining the transition frequency comprises a unit for the Fourier Transformation of the measured current and voltage signals.

22. (previously presented) The device according to claim 14, wherein the element for determining of the transition frequency comprises an analysis unit for analyzing the transformed signals and determining a frequency for which an imaginary part of an impedance of the battery vanishes.

23. (previously presented) The device according to claim 14, comprising a sensor for measuring an operating temperature of the battery.

24. (previously presented) The device according to claim 14, comprising a sensor for measuring the intensity of a direct current flowing through the battery.

25. (previously presented) The device according to claim 14, wherein the calculation unit comprises calculation specifications for assigning the transition frequency to the state-of-charge of the battery for several operating temperatures of the battery.

26. (previously presented) The device according to claim 14, wherein the calculation unit comprises calculation specifications for assigning the transition frequency to

the state-of-charge of the battery for several intensities of the direct current flowing through the battery.

27. (previously presented) The device according to claim 14, wherein the calculation unit comprises calculation specifications for assigning the transition frequency to the state-of-charge of the battery for several aging statuses of the battery.

28. (previously presented) The device according to claim 14, comprising a display device for displaying the state-of-charge of the battery.